Name: Date:
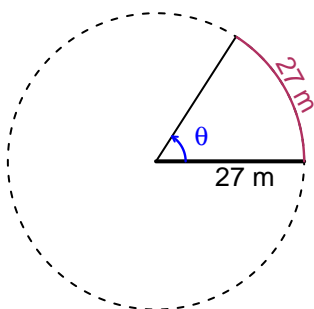_____

Trig Final (Practice v25)

- You can use a calculator (like Desmos)
- You should have a unit-circle with special angles and coordinates marked.
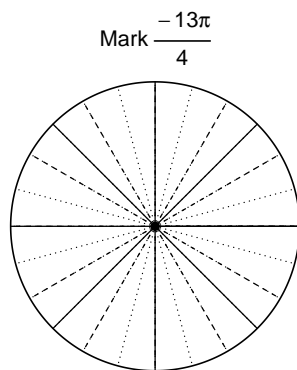
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 27 meters. The radius is 27 meters. What is the angle measure in radians?
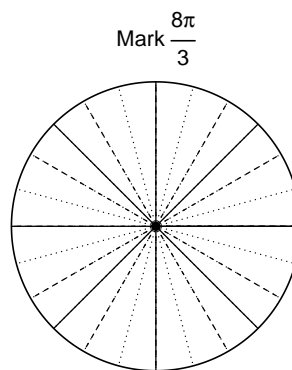

Question 2

Consider angles $\frac{-13\pi}{4}$ and $\frac{8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{-13\pi}{4}\right)$ and $\cos\left(\frac{8\pi}{3}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{-13\pi}{4}$

Find $\sin(-13\pi/4)$

Mark $\dfrac{8\pi}{3}$

Find $\cos(8\pi/3)$

Question 3

If $\tan(\theta) = \frac{-72}{65}$, and θ is in quadrant II, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 4.07$ meters, a frequency of 7.3 Hz, and an amplitude of 2.09 meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).